

EXHIBIT A

Redacted Version of Document Sought to Be Sealed

April 15, 2022

174. Google provided some of Plaintiffs' DBL [REDACTED] data containing user profile information. These data were generated in Chrome Incognito mode while not signed-into Google. For example, "[REDACTED]" contains user profile keyed to Plaintiff Chasom Brown's Biscotti ID that Google generated from Brown's browsing activities on non-Google websites in Incognito mode while not signed-into any Google account.⁷¹ This Google file (with Google collecting and then through the Special Master process providing [REDACTED] of data from Incognito browsing activities at the end of February and beginning of March 2022) contains a myriad of personal information and private browsing activities, including

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

⁷¹ From Second Iterative Search of the Special Master process, "2022-03-14 Brown v. Google - DBL [REDACTED] – AEO" production for "Biscotti Extracted from IDE". The Biscotti ID value "[REDACTED]" is a hexadecimal value converted from Biscotti ID "[REDACTED]". Decimal to Hexadecimal value conversion can be done using <https://www.rapidtables.com/convert/number/decimal-to-hex.html> for example (Last accessed on April 11, 2022). Additional support information can be found in Appendix H.1.

- [REDACTED]

175. The browsing information that Google collected and then produced, just from DBL [REDACTED], also includes keywords⁷² on or related to websites that he has visited (e.g., “[REDACTED]”, “[REDACTED]” at rows 116093-116796), affinity and in-market interest segments and a weighting factor for each segment, and more. Some of the in-market interest segments for Brown include [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED], among many others – the names of these segments are determined from GOOG-BRWN-00229632. Some of the affinity interest segments for Brown include [REDACTED]

[REDACTED]

[REDACTED] among many others – the names of these segments are determined from

⁷² GOOG-CABR-04761793 at -796 explaining that Phil clusters are the “major concepts used on the page”, Content verticals are the “primary topics of a page and the site”, Felix criteria are “Keywords on the page or related to the page” and Label classifiers are “the tone of the page”.

from Chrome Incognito browsing. From the Biscotti ID, one can examine Google logs containing X-Client-Data or the maybe_chrome_incognito field to determine Mr. Davis' Chrome Incognito browsing activities.¹¹⁹ In addition, I have been able to use the same Analytics User ID to locate Mr. Davis' Biscotti ID [REDACTED] generated from non-Incognito browsing; thus demonstrating that the same Analytics User ID can join data from Incognito and non-Incognito browsing.¹²⁰

247. From the First Iterative Search in the Special Master process, I have observed PPID-mapped-biscotti associated with regular Biscotti (IDE) data. For example, GOOG-BRWN-

¹¹⁹ From the Second Iterative Search, production "2022-03-25 Brown v. Google – Analytics [REDACTED] data – AEO", Google produced Plaintiffs' Analytics data. For example, file "[REDACTED]" row 2246 corresponds to Plaintiff Mr. Davis' Analytics User ID "[REDACTED]". Column M of the same row contains a request URL containing his Analytics CID from "[REDACTED]". This same CID is found in the file "[REDACTED]", for example, row 5 and column M. The same row, in column A contains Mr. Davis' Biscotti cookie "[REDACTED]". I have discussed earlier that this Biscotti ID is associated with "[REDACTED]" containing data from Incognito sessions while Mr. Davis was not signed into his Google account. The same Biscotti ID is associated with other ads logs such as "[REDACTED]" and "[REDACTED]". As of April 11, 2022, Google has yet to produce Plaintiffs' full data from the 19 logs containing the maybe_chrome_incognito field and other ads logs requested for the Second Iterative Search.

¹²⁰ For example, file "[REDACTED]" row 2237 corresponds to Plaintiff Mr. Davis' Analytics User ID "[REDACTED]". Column M of the same row contains a request URL containing his Analytics CID from "[REDACTED]". This same CID is found in the file "[REDACTED]", for example, row 131 and column M. The same row, in column A contains Mr. Davis' Biscotti cookie "[REDACTED]". The embedded Biscotti ID in this cookie is shown in "2022-03-02 Brown v. Google - Decode IDE.pdf", page 5, item 38 as "[REDACTED]". I have discussed earlier that this Biscotti ID is associated with "[REDACTED]" containing data from a Chrome non-Incognito session.

00840745¹²¹ contains Dr. Dai's Incognito data associated with Biscotti ID [REDACTED] in the [REDACTED] log. Row 208 in GOOG-BRWN-00840745, corresponding to a single entry in the log, contains 20 page of data (See **Exhibit C**), among which is a "[REDACTED]". This indicates that PPID (which identifies a signed-in user on non-Google websites) is joinable with the same user's private browsing information associated with regular Biscotti IDs in the same way Analytics User IDs are. As of April 11, 2022, Google has not produced data from ads logs containing PPID related information from the Second Iterative Search and subsequent searches. Google has also not produced full data from logs containing "maybe_chrome_incognito", nor any data from [REDACTED] logs containing "is_chrome_incognito" and "is_chrome_non_incognito" fields. I reserve my rights to supplement this report should Google produce the requested data later.

248. Had Google preserved users' signed-in IDs on non-Google websites, which uniquely identify a user, as well as associated logs, it would have been possible to locate additional records of user's signed-out private browsing activities. However, Google did not preserve this information.

249. In addition to storing IDs from different ID spaces in the same log, which allows data to be joined, Google also includes IDs from different ID spaces, such as "authenticated" IDs, "unauthenticated" IDs and signed-in IDs on non-Google websites, within the same URL link. Through the Special Master process, I have observed that embedded IDs within URL links, which Google receives along with intercepted private browsing data, have been decrypted.¹²² This reveals

¹²¹ GOOG-BRWN-00840745 was produced as a part of the First Interactive Search on Jan. 31, 2022 in PROD71 containing data in [REDACTED] logs.

¹²² 2022-03-14 Brown v. Google - Dycrypted URLs - AEO.xlsx

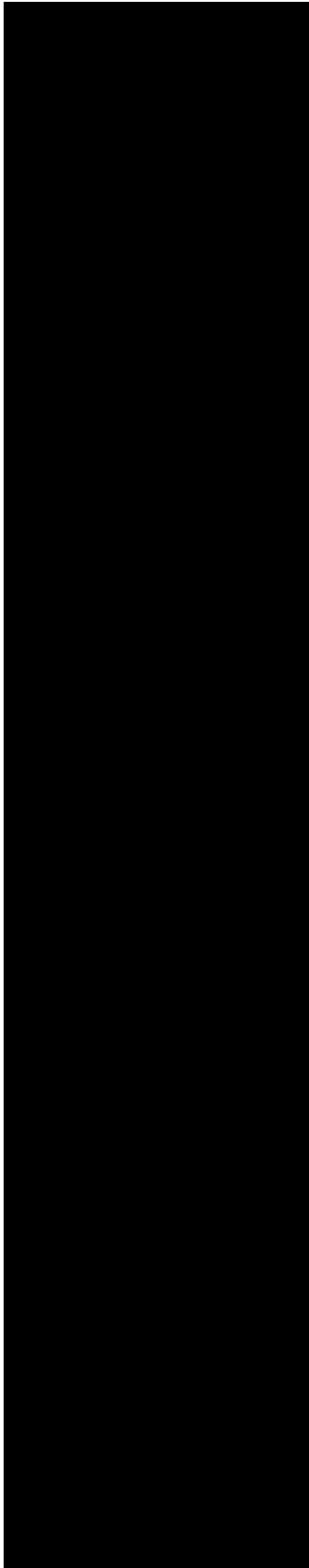
EXPERT REPORT OF JONATHAN E. HOCHMAN

APRIL 15, 2022

EXHIBIT C

GOOG-BRWN-00840745 Row 208

[REDACTED]





[REDACTED]

Age Group	Percentage of Respondents
18-29	85%
30-49	75%
50-64	70%
65+	65%

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1. **Introduction**

1. **Introduction**

1. **Introduction**
 2. **Background**
 3. **Methodology**
 4. **Results**
 5. **Conclusion**
 6. **References**

[REDACTED]

[REDACTED]

HIGHLY CONFIDENTIAL

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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1001

Age Group	Percentage
18-24	100%
25-34	~85%
35-44	~75%
45-54	~65%
55-64	~55%
65-74	~45%
75-84	~35%
85+	~25%



██████████

[REDACTED]

June 7, 2022

37. As an example, I will discuss three Incognito events in the produced [REDACTED] that overlap in time with events in search and display ads logs and show that these events can be joined with a user's device and/or the user's GAIA ID.

38. The produced [REDACTED] log events included in Appendix G of this report show two entries on April 14, 2022, containing search queries "[REDACTED]" and "[REDACTED]". Both events have "is_chrome_incognito" marked as "TRUE" (correctly indicating Incognito mode browsing), Zwieback ID "[REDACTED]", IP address "[REDACTED]" and user agent "[REDACTED]"

[REDACTED]". These two events in Google's logs were generated by browsing with Dr. Dai's device. The produced [REDACTED] log data also shows one entry on April 13, 2022, containing search query "[REDACTED]". This event has "is_chrome_incognito" marked as "TRUE" (correctly indicating Incognito mode browsing), Zwieback ID "[REDACTED]", IP address "[REDACTED]" and user agent "[REDACTED]". This event in Google's logs was generated by browsing with Plaintiff Chasom Brown's device.

39. **Example 1** associated with search query "[REDACTED]": After searching "[REDACTED]" in Incognito mode, Google search ads associated with the same Zwieback ID, IP address, user agent and search query appear in the [REDACTED] log at the same time. A related event in a [REDACTED] with the same time, Zwieback ID, search query, IP address and user agent shows "maybe_chrome_incognito" to be "TRUE." A subsequent search ad click appears in the [REDACTED] a few seconds later and is associated with the same Zwieback ID, IP address, user agent and ad URL. This search ad click is first transmitted to Google, where Google appends a click ID (gclid) identifying the ad click (and search query) to the landing page URL and redirects

the user to the non-Google website. The redirect URL is “ [REDACTED]

[REDACTED].” Once the user is on this non-Google website, in Incognito mode, Google intercepts private communications with at least Google Analytics tracking beacons on this website, which results in Google collecting and storing private browsing information from the private communication between the user and that non-Google website.

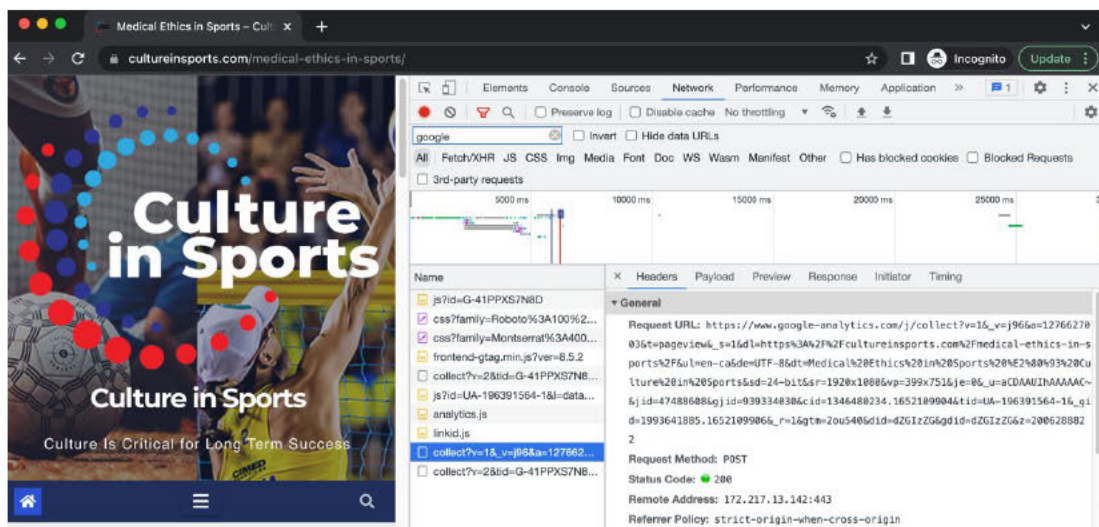
40. This series of browsing activities is listed in the table below along with a screenshot showing Google Analytics tracking beacons sending intercepted data to Google in Incognito mode when visiting “https://cultureinsports.com/medical-ethics-in-sports.” Google stores the private browsing activities of the user on this non-Google website in at least Google’s Analytics logs. For example, from the Second Iterative Search, Google has produced Analytics data stored in `urchin:analytics_collection` and `web_property_hits` among other Analytics logs.¹⁷

Log ¹⁸	Type	Event Time	IP/User agent	Event
[REDACTED]	[REDACTED]	164997890266 1754000 (Thu Apr 14 2022 23:28:22 GMT+0000)	[REDACTED] [REDACTED] [REDACTED]	[REDACTED] [REDACTED]
[REDACTED]	Search ads	164997890283 9924 (Thu Apr 14 2022 23:28:22 GMT+0000)	[REDACTED] [REDACTED] [REDACTED]	[REDACTED] [REDACTED]
[REDACTED]	Search ads	164997890283 9924 (Thu Apr 14 2022 23:28:22 GMT+0000)	[REDACTED] [REDACTED] [REDACTED]	[REDACTED] [REDACTED]

¹⁷ See “2022-03-25 Brown v. Google – Analytics [REDACTED] data – AEO” and “2022-03-15 web_property_hits”

¹⁸ The [REDACTED] log was produced in “2022-04-22 Brown v. Google - [REDACTED] – AEO” and the ads logs were produced in “2022-04-30 Brown v. Google - [REDACTED] Ads – AEO”.

	Search ads	1649978911373234 (Thu Apr 14 2022 23:28:31 GMT+0000)		



41. **Example 2** associated with search query “[REDACTED]”: Similarly, after searching “[REDACTED]”, Google search ads associated with the same Zwieback ID, IP address, user agent and search query

appear in Google's [REDACTED] logs at the same time. The entry in Google's [REDACTED] log further confirms these log entries as Incognito traffic with maybe_chrome_incognito set to "TRUE" along with other identifying information. A subsequent search ad click appears in Google's [REDACTED] a few seconds later and is associated with the same Zwieback ID, IP address, user agent and ad URL. This Google search ad click is first transmitted to Google, where Google appends a click ID (gclid) identifying the ad click (and search query) to the landing page URL and redirects the user to the non-Google website. The redirect [REDACTED] URL [REDACTED] is [REDACTED]

[REDACTED]. Once the user is on this non-Google website, Google intercepts private communications with at least Google Analytics and conversion tracking beacons as shown in the screenshot below. Subsequent Incognito browsing activities on non-Google websites with Google tracking beacons appear in Google's display ads logs, including [REDACTED] and [REDACTED]. In addition, [REDACTED] associated with the same Biscotti ID [REDACTED]" with maybe_chrome_incognito" equal to "TRUE" contains a PPID-mapped-Biscotti "[REDACTED]" along with other identifying information. This hex value is equal to "[REDACTED]"¹⁹ and corresponds to Dr. Dai's signed-in PPID on marca.com²⁰, thus further identifying these Incognito events as her browsing activities. Additionally, from Google's Analytics log "[REDACTED]"²¹, Dr

¹⁹ Hex to decimal value conversion can be done here <https://www.rapidtables.com/convert/number/decimal-to-hex.html>

²⁰ Google provided PPID to PPID-mapped-Biscotti mapping in the Second Iterative Search "2022-03-04 Brown Second Iterative Searches - PPID.xlsx"

²¹ From "2022-04-30 Brown v. Google - Analytics – AEO"

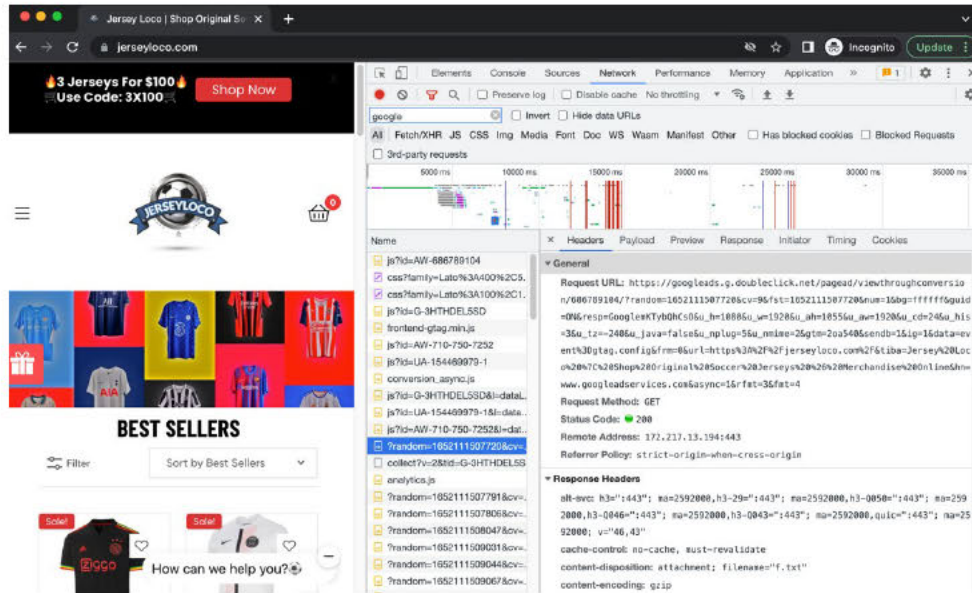
Dai's Biscotti ID is associated with her Analytics user ID "[REDACTED]" on marca.com, which also further identifies these Incognito events as her browsing activities. This series of correlated browsing activities is listed in the table below.

Log ²²	Type	Event Time	IP/User agent	Event
[REDACTED]	[REDACTED]	1649978942655483000 (Thu Apr 14 2022 23:29:02 GMT+0000)	[REDACTED]	[REDACTED]
[REDACTED]	Search ads	1649978942839388 (Thu Apr 14 2022 23:29:02 GMT+0000)	[REDACTED]	[REDACTED]
[REDACTED]	Search ads	1649978942839388 (Thu Apr 14 2022 23:29:02 GMT+0000)	[REDACTED]	[REDACTED]
[REDACTED]	Search ads	1649978964502212 (Thu Apr 14 2022 23:29:24 GMT+0000)	[REDACTED]	[REDACTED]

²² The ads logs are from Third Iterative Search, “2022-04-30 Brown v. Google - [REDACTED] Ads – AEO”; the Analytics log is from “2022-04-30 Brown v. Google - Analytics – AEO”

	Display ads	164997899226 4637 (Thu Apr 14 2022 23:29:52 GMT+0000)		
	Display ads	164997900221 0728 (Thu Apr 14 2022 23:30:02 GMT+0000)		
	Display ads	164997904646 0740 (Thu Apr 14 2022 23:30:46 GMT+0000)		
	Display ads	164997964596 8572 (Thu Apr 14 2022 23:40:45 GMT+0000)		
mp- t	Google Analyti cs	EventID. "time_usec": 165022374333 9831"		

		(Sun Apr 17 2022 19:29:03 GMT+0000)		
				23



42. One could form a complete time-series of browsing activities for a user. This time-series would include private browsing activities on the initial Incognito screen (recorded either to google.com as a search event or, if the user types in a complete URL of a website with Google tracking beacons, in Analytics and display ads logs) as well as on YouTube and non-Google websites containing Google tracking beacons like what I have shown here. For example, Google search ad click redirect_url in [REDACTED] appears in display ad [REDACTED], thereby making it possible to join search and display information. As an example, the table below contains two events produced by Google in connection with the Second Iterative Search, in 2022-03-14 Brown v. Google - [REDACTED] – AEO, that shows joining of Zwieback and Biscotti data using

²³ “2022-05-07 Brown v. Google - Decrypted Biscottis - AEO.csv”

time stamp and event URL. The IP address and user agent further confirm these events belong to the same user.

Log ²⁴	Type	Event Time	IP/User agent	Event
[REDACTED]	Search Ad log	1641219603 975138 (Mon Jan 03 2022 14:20:03 GMT+0000)	[REDACTED]	[REDACTED]
[REDACTED]	Display Ad log	1641219606 309649 (Mon Jan 03 2022 14:20:06 GMT+0000)	[REDACTED]	[REDACTED]

²⁴ As I discussed in my opening report, the Zwieback ID and Biscotti ID in this table are associated with Dr. Dai's Incognito mode traffic.

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43. The signed-out search and display ads logs cited above contain additional identifying information. For example, the following two events in signed-out search and display ads logs both contain similar time, related query and page content, IP address, user agent, country, region, and browser dimension information.



Search Ads Log:	Display Ads Log:
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]




44. Furthermore, information collected and stored by Google from a user's signed-out activities can be linked with the user's GAIA ID. For example, the following GAIA and display

45. Not only can signed-out private browsing information collected and stored by Google be linked to a user's GAIA ID, it can also be linked to a user's device UMA ID, which uniquely identifies a Chrome instance on a device and also includes additional information regarding the use of Chrome Incognito mode. For example, the sequence of UMA user actions associated with Dr. Dai's UMA client_2 ID in the table below can be correlated to the above Incognito browsing records stored by Google.²⁶ UMA data further confirms that a new Incognito window was opened and that the above browsing activities associated with search queries "[REDACTED]" and "[REDACTED]," as well as subsequent browsing activities on non-Google websites, were generated in Incognito mode. Using UMA, Google also collects and stores a wealth of information about users and their devices, including gender and birth year, IP address, user agent, user location, UMA enabled date, as well as a staggering amount of hardware information (e.g., CPU architecture, system RAM, GPU vendor/device/driver version, screen width and height, screen scale factor, among others).²⁷ Such information is highly identifying even for two devices sharing a common IP address.




²⁶ Data from production "2022-04-22 Brown v. Google - UMA – AEO", file "2022-04-14.txt". This document contains coded user actions which the Plaintiffs decoded. The decoded file is included as Exhibit A to this report. UMA user actions and timestamps associated with ads data shown is included in Appendix H, "Apr 14" tab.

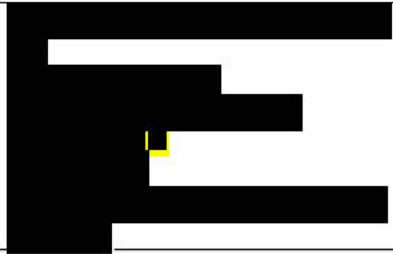

²⁷ GOOG-BRWN-00032906 at -907 explains that UMA stores "system_profile: The system_profile is a proto containing information about the client's browser and system configuration. This has a large set of fields and includes information such as application version, channel, operating system, hardware (such as memory), stability data, plugins installed, field trials (Finch experiments) running, and much more."

User Action Event	time_sec	Date and Time ²⁸	Ads log and Annotations
NewIncognitoWindow	2177491	2022-04-14 23:27:54	Opened a new Incognito window
NewIncognitoWindow2	2177491	2022-04-14 23:27:54	
ActiveTabChanged	2177491	2022-04-14 23:27:54	
ActiveBrowserChanged	2177491	2022-04-14 23:27:54	
ActiveBrowserChanged	2177491	2022-04-14 23:27:54	
NavEntryCommitted	2177491	2022-04-14 23:27:54	Browsing commences in this new Incognito window
OmniboxInputInProgress	2177503	2022-04-14 23:28:06	User types in the URL box
LoadURL	2177506	2022-04-14 23:28:09	URL is loaded
NavEntryCommitted	2177506	2022-04-14 23:28:09	Page visited
NavEntryCommitted	2177506	2022-04-14 23:28:09	
NavEntryCommitted	2177513	2022-04-14 23:28:16	
NavEntryCommitted	2177513	2022-04-14 23:28:16	
NavEntryCommitted	2177514	2022-04-14 23:28:17	
NavEntryCommitted	2177514	2022-04-14 23:28:17	
OpenFileSystemTemporary	2177516	2022-04-14 23:28:19	
NavEntryCommitted	2177519	2022-04-14 23:28:22	
NavEntryCommitted.SRP	2177519	2022-04-14 23:28:22	Search results page 
NavEntryCommitted	2177520	2022-04-14 23:28:23	
NavEntryCommitted.SRP	2177520	2022-04-14 23:28:23	
NavEntryCommitted	2177530	2022-04-14 23:28:33	User clicked on a search ad and was redirected to a non-Google website containing at least Google Analytics tracking beacons 

²⁸ Google has not explained the method to convert UMA user action event offset timestamps to actual times. Google's response to Plaintiffs' question merely addresses how the event offset timestamps are generated, not how Google computes the absolute times (See 2022-05-18 Brown v. Google - Google Letter to SM and Plaintiffs re Final Searches.pdf). However, this particular UMA record shows that the log creation timestamp is 1649977363 (Thu Apr 14 2022 23:02:43 GMT+0000), and the closing timestamp is 1649979165 (Thu Apr 14 2022 23:32:45 GMT+0000). From the  log, we know that the time between a search query of '' and a search query of '' is 40 seconds. These correspond to two different NavEntryCommitted.SRP (Search Results Page) events 40 seconds apart. I have mapped these two events to the UMA user actions within the log creation and log closing times. See Appendix H.

²⁹ Ad click time is slightly offset from UMA time which marks page load time after the click.

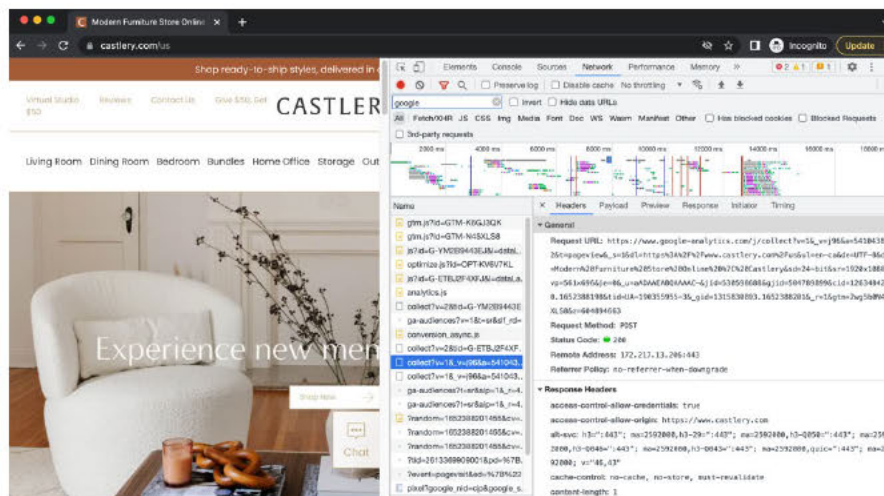
			
Back	2177534	2022-04-14 23:28:37	
NavEntryCommitted	2177534	2022-04-14 23:28:37	
NavEntryCommitted.SRP	2177534	2022-04-14 23:28:37	
NavEntryCommitted	2177550	2022-04-14 23:28:53	
OmniboxInputInProgress	2177553	2022-04-14 23:28:56	
OmniboxDestinationURLIsSearch OnDSP	2177559	2022-04-14 23:29:02	
LoadURL	2177559	2022-04-14 23:29:02	
NavEntryCommitted	2177559	2022-04-14 23:29:02	
NavEntryCommitted.SRP	2177559	2022-04-14 23:29:02	Search Results Page 
NavEntryCommitted	2177560	2022-04-14 23:29:03	
NavEntryCommitted.SRP	2177560	2022-04-14 23:29:03	
NavEntryCommitted	2177564	2022-04-14 23:29:07	
NavEntryCommitted	2177565	2022-04-14 23:29:08	
OpenFileSystemTemporary	2177565	2022-04-14 23:29:08	
Back	2177570	2022-04-14 23:29:13	
NavEntryCommitted	2177571	2022-04-14 23:29:14	
NavEntryCommitted.SRP	2177571	2022-04-14 23:29:14	
Media.Hidden	2177571	2022-04-14 23:29:14	
NavEntryCommitted	2177585	2022-04-14 23:29:28	User clicked on a search ad and was redirected to a non-Google website containing at least Google Analytics and conversion tracking beacons 

Media.Hidden	2177585	2022-04-14 23:29:28	
OmniboxInputInProgress	2177595	2022-04-14 23:29:38	
LoadURL	2177597	2022-04-14 23:29:40	
NavEntryCommitted	2177598	2022-04-14 23:29:41	
OpenFileSystemTemporary	2177598	2022-04-14 23:29:41	
OpenFileSystemTemporary	2177600	2022-04-14 23:29:43	
NavEntryCommitted	2177608	2022-04-14 23:29:51	
OpenFileSystemTemporary	2177608	2022-04-14 23:29:51	
OpenFileSystemTemporary	2177609	2022-04-14 23:29:52	
NavEntryCommitted	2177618	2022-04-14 23:30:01	
OpenFileSystemTemporary	2177618	2022-04-14 23:30:01	
OpenFileSystemTemporary	2177619	2022-04-14 23:30:02	
NavEntryCommitted	2177631	2022-04-14 23:30:14	

46. **Example 3** associated with search query “furniture”: Similarly, associated with Plaintiff Chasom Brown’s Incognito data, after searching “furniture”, I was able to trace through the various Google logs to a search ad click activity leading to a non-Google website with Google Analytics and conversion tracking beacons as demonstrated in the screenshot below. Subsequent Incognito browsing activities on non-Google websites with Google tracking beacons appear in Google display ads logs. In addition, [REDACTED] te associated with the same Biscotti ID “[REDACTED]” with maybe_chrome_incognito” equal to “TRUE” contains a PPID-

³⁰ Display ad query event marks ad query time and are slightly offset from the UMA record timestamp which marks page load time.

mapped-Biscotti “[REDACTED]” along with other identifying information. This hex value corresponds to Mr. Brown’s signed-in PPID on globo.com³¹. This series of correlated browsing activities is listed in the table below. As mentioned earlier, one could form a complete time-series of browsing activities for a user, including activities on google.com, YouTube and non-Google websites containing Google tracking beacons like what I have shown here.



Log ³²	Type	Event Time	IP/User agent	Event
[REDACTED]		1649881498380199000 (Wed Apr 13 2022 20:24:58 GMT+0000)	[REDACTED]	[REDACTED]
[REDACTED]	Search ads	1649881498573998 (Wed Apr 13 2022 20:24:58 GMT+0000)	[REDACTED]	[REDACTED]
[REDACTED]	Search ads	1649881498573998 (Wed Apr 13 2022 20:24:58 GMT+0000)	[REDACTED]	[REDACTED]

³¹ This PPID-mapped-Biscotti also appears in production “2022-04-30 Brown v. Google - [REDACTED] Ads – AEO”, file “[REDACTED]”, which contains Mr. Brown’s regular mode browsing information.




³² The ads logs are from Third Iterative Search, “2022-04-30 Brown v. Google - [REDACTED] Ads – AEO”; the Analytics log is from “2022-04-30 Brown v. Google - Analytics – AEO”

	Display Ads	16498824209540 61 (Wed Apr 13 2022 20:40:20 GMT+0000)		
	Display Ads	16498824618025 32 (Wed Apr 13 2022 20:41:01 GMT+0000)		

47. Within the data collected and stored by Google, Mr. Brown's private browsing data can similarly be linked with his UMA events. For example, as I show in Appendix H, "Apr 13" tab, the same IP address and user agent in the table above are also found in UMA data. Furthermore, UMA user actions corresponding to the private browsing information above are shown below. Additional events are shown in Appendix H.

User Action Event	time_sec	Date and Time ³³	Ads log and Annotations
NewIncognitoWindow	6472845	2022-04-13 20:24:20	Opened a new Incognito window
NewIncognitoWindow2	6472845	2022-04-13 20:24:20	
ActiveTabChanged	6472845	2022-04-13 20:24:20	
ActiveBrowserChanged	6472845	2022-04-13 20:24:20	
ActiveBrowserChanged	6472845	2022-04-13 20:24:20	

³³ I show in Appendix G that from the [REDACTED] log, we know the time between a search query of "[REDACTED]" and a search query of "[REDACTED]" is 3127 seconds. These search query times correspond to two different NavEntryCommitted.SRP events 3127 seconds apart. I have mapped these two events to the UMA user actions within the log creation and log closing times.

NavEntryCommitted	6472846	2022-04-13 20:24:21	Browsing commences in this new Incognito window
OmniboxInputInProgress	6472866	2022-04-13 20:24:41	User types in the URL box
LoadURL	6472869	2022-04-13 20:24:44	URL is loaded
NavEntryCommitted	6472871	2022-04-13 20:24:46	Page visited
NavEntryCommitted	6472871	2022-04-13 20:24:46	
NavEntryCommitted	6472882	2022-04-13 20:24:57	
NavEntryCommitted.SRP	6472882	2022-04-13 20:24:57	
NavEntryCommitted	6472883	2022-04-13 20:24:58	
NavEntryCommitted.SRP	6472883	2022-04-13 20:24:58	Search results page 
NavEntryCommitted	6472884	2022-04-13 20:24:59	
NavEntryCommitted.SRP	6472884	2022-04-13 20:24:59	
NavEntryCommitted	6472897	2022-04-13 20:25:12	User clicked on a search ad and was redirected to a non-Google website containing at least Google Analytics and conversion tracking beacons  
Autofill_ParsedProfileForm	6472901	2022-04-13 20:25:16	
Autofill_ParsedProfileForm	6472905	2022-04-13 20:25:20	
Back	6472910	2022-04-13 20:25:25	

48. The amount of data Google stores from users' browsing activities is staggering. In the table below, I summarize the average number of lines of data Google stores in various logs for a single

event entry, each event entry containing a few kilobytes to a few megabytes of data on average.³⁴

These averages are taken over the total number of produced event entries for each log.

[illegible]

49. In Appendix J, I show six sample Incognito event entries stored in six different Google logs, each event entry is the first that appears in the respective log file. These event entries fill over 250 pages at size 5 font.

³⁴ This data is compiled from data stored in Google ads logs produced between April 30 to May 20, 2022.

[REDACTED]

[REDACTED].

67. The same fingerprinting techniques can be used to identify class members, including for purposes of verifying a person’s claim that he or she used Incognito. GOOG-CABR-04308776 at -777 lists a few fingerprinting parameters “IP address, Browser / user-agent / platform, Installed fonts, Screen resolution, Location & time zone & language, Whether or not cookies are enabled, Whether or not Do Not Track is enabled.” These fingerprinting parameters are found in Google’s analytics and ads logs. For example, on April 30, 2022, Google produced data in several ads logs.³⁶ As an example, “[REDACTED]” is associated with Plaintiff [REDACTED] Biscotti ID [REDACTED] in an Incognito browsing session.³⁷ Row 2 shows an exemplary event entry containing time stamp, IP address, user agent, DisplayLang (“[REDACTED]”), [REDACTED] (“[REDACTED]”), HeaderOrder (indicating the order in which HTTP header information appear³⁸), referer URL [REDACTED] redirect URL [REDACTED], and HTTPHeader. The HTTPHeader itself contains a myriad of information shown below, including “sec-ch-ua”, “sec-ch-ua-platform”, “accept”, “accept-language”, “Cookie” and “Accept-Encoding”, among other fingerprinting information. Since this is from an Incognito session, the “X-Google-GFE-Original-X-Client-Data” field is empty. Additional fingerprinting information are contained in X-Google-GFE-Frontline-Info, including

³⁶ 2022-04-30 Brown v. Google - [REDACTED] Ads – AEO

³⁷ I explained in Appendix I of my opening report that Biscotti ID [REDACTED] belongs to Mr. Brown’s Incognito session and the “maybe_chrome_incognito” bit in three display logs shows that the browsing session is Incognito.

³⁸ Different browsers send different header information and in different order. <https://chris124567.github.io/2021-06-15-websites-lying-user-agent/> (Last accessed on May 30, 2022).